



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,385	08/02/2006	Hiroshi Yoshida	0171-1295PUS1	8375
2292	7590	01/16/2009	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				SINCLAIR, DAVID M
ART UNIT		PAPER NUMBER		
2831				
NOTIFICATION DATE			DELIVERY MODE	
01/16/2009			ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/588,385	YOSHIDA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DAVID M. SINCLAIR	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12 November 2008.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-7 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-7 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO02/0076924 hereafter referred to as Sato (USPAT 7,297,289 – columns and lines refer to USPAT) in view of Oyama et al. (5,891,822).

In regards to claim 1,

Sato discloses an electric double layer capacitor comprising a pair of polarizable electrodes and an electrolyte (C12:L45-50); which electric double layer capacitor is characterized in that the polarizable electrodes are composed primarily of activated carbon (C12:L55-65), and the electrolyte includes at least an ionic

liquid in a concentration of more than 2.0 mol/L (C12:L45-50 & C11:L20-27).

Sato fails to explicitly disclose the activated carbon having micropores with a pore radius distribution peak as determined by the MP method in a range of  $5.0 \times 10^{-10}$  to  $1.0 \times 10^{-9}$  m.

Oyama '822 teaches activated carbon used as an electrode for an electric double layer capacitor wherein said activated carbon has micropores with a pore radius distribution peak as determined by the MP method in a range of  $5.0 \times 10^{-10}$  to  $1.0 \times 10^{-9}$  m (column 2 – lines 23-27 & 51-57; pore size is the pore diameter which would give a radius of 5 to 10 Å and mode implies peak).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the pore radius distribution peak taught by Oyama '822 with the activated carbon of Sato to obtain an electric double layer capacitor with a large energy density.

In regards to claim 2,

The references as applied above disclose all the limitations of claim 2 except the electrolyte is composed solely of the ionic liquid. However, Sato further discloses the electrolyte is composed solely of the ionic liquid (C10:L39-42).

In regards to claim 3,

The references as applied above disclose all the limitations of claim 3 except the electrolyte includes two or more ionic liquids. However, Sato further discloses the electrolyte includes two or more ionic liquids (C10:L39-42).

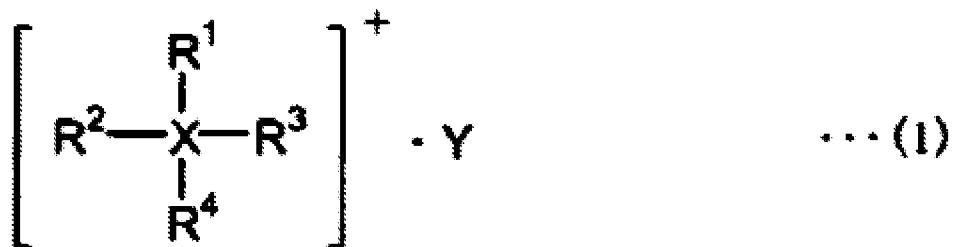
In regards to claim 4,

The references as applied above disclose all the limitations of claim 4 except the ionic liquid is a quaternary ammonium salt or a quaternary phosphonium salt. However, Sato further discloses the ionic liquid is a quaternary ammonium salt or a quaternary phosphonium salt (C7:L7-13)).

In regards to claim 5,

The references as applied above disclose all the limitations of claim 5 except the ionic liquid has the following general formula (1)

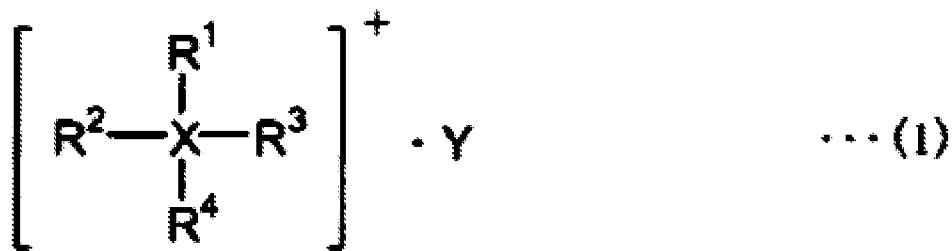
[Chemical Formula 1]



wherein R<sup>1</sup> to R<sup>4</sup> are each independently an alkyl group of 1 to 5 carbons or an alkoxyalkyl group of the formula R'-O-(CH<sub>2</sub>)<sub>n</sub>- (R' being methyl or ethyl, and the letter n being an integer from 1 to 4) and any two from among R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> may together form a ring, with the proviso that at least one of R<sup>1</sup> to R<sup>4</sup> is an

alkoxyalkyl group of the above formula; X is a nitrogen atom or a phosphorus atom; and Y is a monovalent anion. However, Sato further discloses the ionic liquid has the following general formula (1)

[Chemical Formula 1]



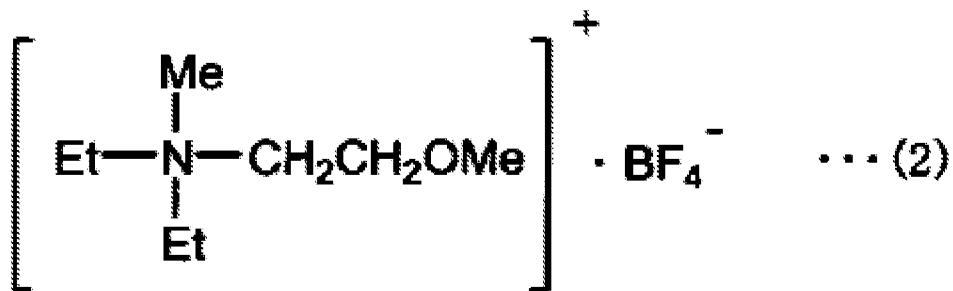
wherein R<sup>1</sup> to R<sup>4</sup> are each independently an alkyl group of 1 to 5 carbons or an alkoxyalkyl group of the formula R'-O-(CH<sub>2</sub>)<sub>n</sub>- (R' being methyl or ethyl, and the letter n being an integer from 1 to 4) and any two from among R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> may together form a ring, with the proviso that at least one of R<sup>1</sup> to R<sup>4</sup> is an alkoxyalkyl group of the above formula; X is a nitrogen atom or a phosphorus atom; and Y is a monovalent anion (C6:L45-61).

In regards to claim 6,

The references as applied above disclose all the limitations of claim 6 except the ionic liquid has the following formula (2)

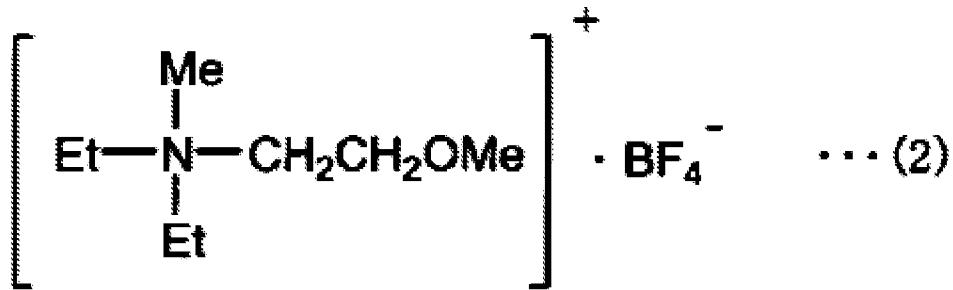
[Chemical Formula 2]

Art Unit: 2831



wherein Me stands for methyl and Et stands for ethyl. However, Sato further discloses the ionic liquid has the following formula (2)

[Chemical Formula 2]



wherein Me stands for methyl and Et stands for ethyl (C7:L20-42).

In regards to claim 7,

The references as applied above disclose all the limitations of claim 7 except the activated carbon is a chemically activated product of at least one carbonized material selected from among coal-based pitch, petroleum-based pitch, coke and mesophase carbon. However, Sato further discloses the activated carbon is a chemically activated product of at least one carbonized material selected from among coal-based pitch, petroleum-based pitch, coke and mesophase carbon (C12:L55-65).

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs. 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/588,385  
Art Unit: 2831

Page 8

/Diego Gutierrez/  
Supervisory Patent Examiner, Art Unit 2831

/D. M. S./  
Examiner, Art Unit 2831